Figure 3 illustrates an example of the timing of the transmitted and received useful signal, as well as of the encoding in the WDM network.

Figure 4 shows a further example of the timing of the useful signal prior to encoding, as well as of the useful and overhead signal during transmission over the WDM network.

Detailed Description--.

On page 8, line 10, change "Fig." to --Figure--.

On page 9, line 23, before "invention" insert --present--.

On page 11, delete line 18.

On page 11, line 19, before "invention" insert --present--.

On page 12, line 1, change "What is claimed is:" to --What Is Claimed Is:--.

In The Claims:

Please cancel claims 1-13, without prejudice, and add new claims 14-27 as follows:

14. (New) A method for transmitting signaling and control information for a wavelength-division multiplex network that performs an optical, fiber-bound information transfer in a digitized form, comprising the steps of:

using a terminal to process useful information according to one of an optical encoding and an optical decoding;

performing one of the steps of:

feeding at a network terminator the useful information into the wavelength-division multiplex network as an optical signal having a defined fundamental wavelength, and

removing at the network terminator the useful information from the wavelength-division multiplex network as the optical signal having the defined fundamental wavelength;

transmitting collectively a plurality of signals having different wavelengths in an

optical fiber;

performing one of a generation and an analysis of the signaling and control information in one of the network terminator and in a further network element;

performing one of the steps of:

feeding the signaling and control information into the wavelength-division multiplex network, and

removing the signaling and control information from the wavelength-division multiplex network;

using a time-division multiplex operation to transmit as the useful information the signaling and control information with the defined fundamental wavelength via the same components of the wavelength-division multiplex network, wherein the signaling and control information is capable of being modulated independently of the useful information.

15. (New) The method according to claim 14, wherein the signaling and control information includes a characteristic signal sequence by which the signaling and control information is capable of being identified in a signal stream of the useful information such that corresponding transmitters and receivers of the signaling and control information are synchronized.

16. (New) The method according to claim 14, further comprising the step of:

transmitting the signaling and control information at regular time intervals T for a predetermined duration of T_{OH}.

17. (New) The method according to claim 16, wherein each regular time interval T is a multiple of a characteristic clock pulse duration of the useful information.

18. (New) The method according to claim 16, wherein:

a synchronization between a transmitter and a receiver of the signaling and control information is accomplished by a characteristic signal being transmitted at

short intervals, and

following the synchronization, the characteristic signal is transmitted at variable duration time intervals that gradually increase up to a duration of the regular time intervals T.

19. (New) The method according to claim 16, further comprising the step of:

during the transmission of the signaling and control information, interrupting the transmission of the useful information for a duration of $T_{OH}+ 2\ \delta$, wherein the time interval δ exists between a suppression of the useful information and the transmission of the signaling and control information.

20. (New) The method according to claim 19, further comprising the steps of:

during the interruption lasting for the duration of $T_{OH} + 2\delta$ resulting from the transmission of the signaling and control information, buffering the useful information in a transmitting terminal equipment; and

during an intervening interval with a duration of $T - T_{OH} + 2\delta$, transmitting the useful information at such an increased bit rate that an average bit rate corresponds to an uninterrupted useful information transfer.

21. (New) The method according to claim 20, wherein the transmitting terminal equipment includes shift registers.

22. (New) The method according to claim 20, further comprising the steps of:

causing the transmitting terminal equipment to reserve time gaps of the duration $T_{OH} + 2\delta$ in the useful information; and

causing the transmitting terminal equipment to signal a temporal position of the reserved time gaps via the network terminator to a network element transmitting the signaling and control information.

23. (New) The method according to claim 20, further comprising the steps of:

causing the network terminator to inform the transmitting terminal equipment of when a time gap having the duration of $T_{OH} + 2\delta$ in the useful information is to be reserved for the transmission of the signaling and control information; and

causing the network terminator to inform the transmitting terminal equipment of when the useful information is to be buffered.

24. (New) The method according to claim 16, further comprising the step of:

causing the signaling and control information to overwrite the useful information during a transmission interval defined by the duration T_{OH}.

25. (New) The method according to claim 14, further comprising the step of:

correcting an interference of the useful information caused by the transmission of the signaling and control information by using an error correction algorithm that is optimized for block interferences.

26. (New) The method according to claim 14, wherein the transmission of the useful information includes using a line code that is fault-tolerant with respect to an interference caused by the transmission of the signaling and control information with respect to block interferences.

27. (New) The method according to claim 20, further comprising the steps of:

causing the network terminator to communicate the signaling and control information to the transmitting terminal;

causing the transmitting terminal to optically encode the signaling and control information and transmit the signaling and control information via the wavelength-division multiplex network; and

causing a receiving terminal provided with the encoded useful information to:

decode the signaling and control information,

filter out the signaling and control information from the useful information,